

III. Remarks

The Office Action raises a restriction requirement to one of the following groups of claims under 35 U.S.C. § 121:

- I. Claims 1-15, drawn to a flame retardant article; and
- II. Claims 16-22, drawn to a method for preparing a flame retardant.

Applicants confirm the telephonic election made on February 12, 2003 to prosecute the invention of Group I, claims 1-15. This election is made without prejudice to applicants' right for rejoinder of the non-elected claims and / or the filing of a divisional or continuation application that includes the non-elected claims.

With this paper, claim 1 has been amended. Claims 23-26 have been added. Claims 1-15 and 23-26 are presented for examination. Support for the amendment to claim 1 can be found in the present application at claim 1 and, for example, at page 10, lines 11-13. Support for claim 23 can be found in the application such as at page 11, line 15. Support for claim 24 can be found in the pending claims 1, 2, 11, and 15 and elsewhere in the application. Support for claim 25 can be found in pending claims 1, 2, and 11. Support for claim 26 can be found in claim 1 and in Table 1 of the application on pages 33-34.

Claims 9-11 have been rejected under 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Action questions whether claim 9 is directed to the antimony-free fire retardant including a blowing agent or whether the article includes a blowing agent. Applicants respectfully point to page 4, lines 17-18 of the patent application which states that intumescent fire retardants generally comprise an acid source, a char former, and a blowing agent. It is believed that the description and claim 9 reflects the understanding of those skilled in the art so that claim 9 is clear and definite. Accordingly, reconsideration and withdrawal of the Office Action's section 112 rejection of claims 9-11 is now requested.

Claims 1-3, 5-12, and 15 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Gehlsen et al. (US 6,103,152) in view of Parsons et al (US 5,851,663). For the following reasons, reconsideration and withdrawal of this rejection is requested.

Unlike the present invention, Gehlsen et al. neither teaches nor suggests a flame retardant article comprising an antimony-free fire retardant. Gehlsen et al. disclose an article that includes a polymer foam having a substantially smooth surface where the foam includes a plurality of microspheres, at least one of which is an expandable polymeric microsphere (see col. 1 lines 18-26). Gehlsen et al. further disclose that the article may include one or more separate adhesive compositions bonded to the foam, e.g., in the form of a layer (col. 2, lines 61-62). As stated by the Examiner, Gehlsen et al. does not teach an adhesive tape having as an element an antimony-free fire retardant. Although Gehlsen mentions the general possibility of including a fire retardant in the disclosed foams (see col. 8, lines 44-55), Gehlsen does not suggest the specific inclusion of antimony-free fire retardant. Moreover, Gehlsen mentions the possibility of including a fire retardant along with "other additives." Nothing in Gehlsen teaches or suggests antimony free fire retardant be included in the foams of Gehlsen, and Gehlsen provides real motivation to those skilled in the art to add specific fire retardants such as antimony free fire retardants.

In contrast to Gehlsen, Applicants have discovered that foam articles containing expandable polymeric microspheres can be made fire retardant. Expandable polymeric microspheres comprise a polymer shell and a core material in the form of a gas, liquid, or combination thereof, and which upon heating, the polymer shell expands due to the expansion of the core material. The core materials may be propane, butane, pentane, isobutane, neopentane, or similar material and combinations thereof (see application, page 9, lines 11-15). It was unexpected that an article comprising a foam containing such flammable core materials could be made fire retardant. It was unexpected that an article comprising a foam containing such flammable core materials and an antimony-free fire retardant would pass one or more flammability test such as UL 94, F.A.R. § 25.853, ASTM E162, ASTM E662, and BSS 7239 (see applicants' specification page 20, lines 9-10).

Parsons et al do not make up for the deficiencies of the Gehlsen et al. reference.

Parsons et al disclose pressure-sensitive adhesive compositions comprising an adhesive selected from the group consisting of rubber resin adhesives and acrylic adhesives containing from about 10 to about 60 % by weight of adhesive of a non-halogen intumescent flame retardant (see, e.g., Abstract). For certain applications, where a thick adhesive is necessary, a "foam" pressure sensitive adhesive in the form of the foam having cells throughout the adhesive can be generated by frothing (as disclosed, for example, in U.S. Pat. No. 4,415,615) or by incorporating glass hollow microspheres (as disclosed, for example, in U. S. Pat. No.4,233,067) or polymeric hollow microspheres (as disclosed, for example, in EP 257984 wherein the cells occupy 20-65% of the volume of the adhesive). Parsons et al does not disclose a flame retardant article, comprising an expanded polymeric foam material comprising a polymer, antimony-free fire retardant, one or more synergists, and about 0.1 parts by weight to about 20 parts by weight based on 100 parts by weight of polymer of expanded polymeric microspheres as described in Applicants' amended claim 1.

Dependent claim 13 has been rejected under 35 U.S.C. § 103(a) as unpatentable over Gehlsen et al. (US 6,103,152) in view of Parsons et al (US 5,851,663) as applied to claim 1 above, further in view of Bonk et al (US 4,751,269). Additionally, dependent claim 14 has been rejected under 35 U.S.C. § 103(a) as unpatentable over Gehlsen et al. (US 6,103,152) in view of Parsons et al (US 5,851,663) and Bonk et al (US 4,751,269) as applied to claim 13 above, and further in view of Perez et al (US 6,110,588).

Applicants have addressed the Office Action's rejection of independent claim 1. It is respectfully submitted that the various dependent claims are also patentable over the cited art for the same reasons set forth regarding claim 1. With the allowance of claim 1, these claims should also be allowable over the cited art.

For at least the foregoing reasons, reconsideration and withdrawal of the section 103(a) rejection of Applicants' claims is now requested.

Applicants gratefully acknowledge the indicated allowability of claim 4.

Applicants have endeavored to address all of the issues raised in the recent Office Action. It is now believed that the application is in condition for allowance, and the allowance of all pending claims is now requested.

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Office of Intellectual Property Counsel
3M Innovative Properties Company
P.O. Box 33427
St. Paul, Minnesota 55133-3427
Facsimile: (651) 736-3833

Respectfully submitted,

By Daniel R. Pastirik
Daniel R. Pastirik